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10/536,897	11/04/2005	Morgan Larsson	1807-0186PUS1	4706

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EXAMINER	
KENNEDY, TIMOTHY J	

ART UNIT	PAPER NUMBER
4151	

NOTIFICATION DATE	DELIVERY MODE
10/29/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/536,897	LARSSON, MORGAN	
	Examiner	Art Unit	
	TIMOTHY KENNEDY	4151	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-3 and 6-8* is/are rejected.

7)☐ Claim(s) *4,5 and 9-12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 May 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *05/27/2005 and 08/11/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 4-5 and 9-12 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim can not depend from any other multiple depend claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Objections

2. Claim 6 is objected to because of the following informalities: from (page 37, line 24) should be formed. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3 and 6-8 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Andersson et al (WO 01/81031: Already of Record). Regarding claim 1, Andersson et al teach:

5. A method for production of three-dimensional bodies by successive fusing together of selected areas of a powder bed, which parts correspond to successive cross sections of the three-dimensional body, which method comprises the following method steps (page 16, lines 27-30)

6. Application of powder layers to a work table (page 16, line 31)

7. Supplying energy from a radiation gun according to an operating scheme determined for the powder layer to said selected within the powder layer, fusing together that area of the powder layer selected according to said operating scheme for forming a cross section of said three-dimensional body (page 16, lines 32-33 - page 17, lines1-3)

8. A three-dimensional body being formed by successive fusing together of successively formed cross sections from successively applied powder layers (page 17, lines 4-6)

9. Characterized in that an energy balance is calculated for said selected area, it being determined in the calculation whether energy radiated into the selected area from the surroundings of the selected area is sufficient to maintain a defined working temperature of the selected area.

10. Applicant discloses that the energy balance can be calculated using any or all of the following parameters: total area of the part area; total volume of the part area; total length of the edge of the part area; ambient temperature of the powder layer; temperature of the top powder layer; temperature in a fused-together area within the selected area in the top layer; desired surface temperature of the fused- together selected area; temperature at the bottom of the three-dimensional body; temperature in the upper surface of the three-dimensional body; temperature of the three-dimensional body before energy is supplied to the selected area in the top layer, [which is referenced for understanding and not for incorporating unclaimed features.]

11. Andersson et al disclose the use of a camera for sensing the temperature distribution of a surface layer on the powder bed (page 8, lines 28-30), but does not directly disclose an energy balance equation for determining the needed working temperature. Using the temperature information gathered by the camera, a skilled artisan would have been able to construct an energy balance equation using the known energy equation:

12. $H=C_p * m * \Delta T$

13. Where m is the mass of the selected area, C_p is the specific heat capacity of the powder being fused, and ΔT is the change in temperature of the powder areas.

14. As is such, it would have been obvious to one having ordinary skill in art at the time the invention was made to calculate whether the energy radiated into the selected area from the surroundings of the selected area is sufficient to maintain a defined working temperature of the selected area, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. One would have been motivated to make said calculation to ensure that the product made from the fused powder was created without any introduced strain. *In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).*

15. Regarding claim 2:

16. In addition to said energy for fusing together the selected area, energy for heating the selected area is supplied if the result of the energy balance calculation is that sufficient energy for maintaining an intended working temperature of the selected

area is not present, a defined working temperature of the selected area then being achieved.

17. Andersson et al disclose a method for heating the powder bed when the desired working temperature is not achieved (page 12, lines 10-14), but do not directly disclose an energy balance equation for determining the needed energy increase.

18. Andersson et al do disclose the use of a camera for sensing the temperature distribution of a surface layer on the powder bed (page 8, lines 28-30). Using the temperature information gathered by the camera, a skilled artisan would have been able to construct an energy balance equation using the known energy equation and calculate the needed increase in energy:

19. $H=C_p * m * \Delta T$

20. Where m is the mass of the selected area, C_p is the specific heat capacity of the powder being fused, and ΔT is the change in temperature of the powder areas.

21. As is such, it would have been obvious to one having ordinary skill in art at the time the invention was made to calculate the energy for heating the selected area if the result of the energy balance calculation is that sufficient energy for maintaining an intended working temperature of the selected area is not present, a defined working temperature of the selected area then being achieved, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. One would have been motivated to make said calculation to ensure that the product made from the fused powder was created without any introduced strain. *In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).*

22. Regarding claim 3:

23. Characterized in that the energy balance for each powder layer is calculated according to $E^{in}(i) = E^{out}(i) + E^{heat}(i)$, where $E^{in}(i)$ represents energy fed into the selected area, $E^{out}(i)$ represents energy losses through dissipation and radiation from the part area, and $E^{heat}(i)$ represents stored in the selected area.

24. Andersson et al disclose the use of a camera for sensing the temperature distribution of a surface layer on the powder bed (page 8, lines 28-30), but does not directly disclose an energy balance equation. Using the temperature information gathered by the camera, a skilled artisan would have been able to construct an energy balance equation using the known energy equation:

25. $H=C_p * m * \Delta T$

26. Where m is the mass of the selected area, C_p is the specific heat capacity of the powder being fused, and ΔT is the change in temperature of the powder areas.

27. Andersson et al also disclose that the power output (and thus energy) from the radiation beam is adjustable (page 12, line 2)

28. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the camera to detect the powder temperature and adjustable radiation beam as taught Andersson et al, and using the known equation $H=C_p * m * \Delta T$, be able to calculate an energy balance equation, it has also been held that discovering an optimum value of a result effective variable involves routine skill in the art since doing so would enable the operator to ensure no manufacturing defects are introduced

into the product, such as induced strain. *In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).*

29. Regarding claim 6:

30. A work table on which said three-dimensional product is to be built up (page 14, lines 4-5)

31. A powder dispenser which is arranged so as to distribute a thin layer of powder on the work table for forming a powder bed (page 14, lines 5-6)

32. A radiation gun for delivering energy to the powder, fusing together of the powder then taking place (page 14, lines 6-7)

33. Means for guiding the beam emitted by the radiation gun over said powder bed for forming a cross section of said three-dimensional product by fusing together parts of said powder bed (page 14, lines 8-10)

34. A control computer in which information about successive cross sections of the three-dimensional product is stored, which cross sections build up the three-dimensional product, where the control computer is intended to control said means for guiding the radiation gun over the powder bed according to an operating scheme forming a cross section of said three-dimensional body (page 14, lines 10-15)

35. Said three-dimensional product being formed by successive fusing together of successively formed cross sections from by the powder dispenser (page 14, lines 16-18)

36. Characterized in that the control computer is also arranged so as to calculate an energy balance for at least one part area within each powder layer, it being determined

in the calculation whether energy radiated into the part area from the surroundings of the part area is sufficient to maintain a defined working temperature of the part area.

37. Applicant discloses that the energy balance can be calculated using any or all of the following parameters: total area of the part area; total volume of the part area; total length of the edge of the part area; ambient temperature of the powder layer; temperature of the top powder layer; temperature in a fused-together area within the selected area in the top layer; desired surface temperature of the fused- together selected area; temperature at the bottom of the three-dimensional body; temperature in the upper surface of the three-dimensional body; temperature of the three-dimensional body before energy is supplied to the selected area in the top layer.

38. Andersson et al disclose the use of a controlling computer for storing information on the sequential cross-sections (page 6, lines 10-11), and a camera for sensing the temperature distribution of a surface layer on the powder bed (page 8, lines 28-30), but does not directly disclose an energy balance equation for determining the needed working temperature. Using the temperature information gathered by the controlling computer and camera, a skilled artisan would have been able to instruct the controlling computer to calculate an energy balance equation using the known energy equation:

39. $H=C_p * m * \Delta T$

40. Where m is the mass of the selected area, C_p is the specific heat capacity of the powder being fused, and ΔT is the change in temperature of the powder areas.

41. As is such, it would have been obvious to one having ordinary skill in art at the time the invention was made to instruct a control computer to calculate whether the

energy radiated into the selected area from the surroundings of the selected area is sufficient to maintain a defined working temperature of the selected area, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. One would have been motivated to make said calculation to ensure that the product made from the fused powder was created without any introduced strain. *In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).*

42. Regarding claim 7:

43. The control computer is arranged so as to control said operating scheme for supply of, in addition to said energy for fusing together powder layers, energy for heating the powder layer if the result of the energy balance calculation is that the operating scheme is not providing sufficient energy for maintaining an intended working temperature of the part area, a defined working temperature of the part area then being maintained.

44. Andersson et al disclose a method for heating the powder bed when the desired working temperature is not achieved (page 12, lines 10-14), but do not directly disclose an energy balance equation for determining the needed energy increase using a control computer.

45. Andersson et al do disclose the use of a controlling computer for storing information on the sequential cross-sections (page 6, lines 10-11), and a camera for sensing the temperature distribution of a surface layer on the powder bed (page 8, lines 28-30). Using the temperature information gathered by the camera, a skilled artisan

would have been able to construct an energy balance equation using the known energy equation and calculate the needed increase in energy:

46. $H=C_p * m * \Delta T$

47. Where m is the mass of the selected area, C_p is the specific heat capacity of the powder being fused, and ΔT is the change in temperature of the powder areas.

48. As is such, it would have been obvious to one having ordinary skill in art at the time the invention was made to instruct a control computer to calculate the energy for heating the selected area if the result of the energy balance calculation is that sufficient energy for maintaining an intended working temperature of the selected area is not present, a defined working temperature of the selected area then being achieved, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. One would have been motivated to make said calculation to ensure that the product made from the fused powder was created without any introduced strain. *In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).*

49. Regarding claim 8:

50. Characterized in that the control computer is arranged so as to calculate the energy balance for each powder layer according to $E^{in}(i) = E^{out}(i) + E^{heat}(i)$, where $E^{in}(i)$ represents energy fed into the part area, $E^{out}(i)$ represents energy losses through dissipation and radiation from the part area, and $E^{heat}(i)$ represents energy stored in the part area.

51. Andersson et al disclose the use of a controlling computer for storing information on the sequential cross-sections (page 6, lines 10-11), and a camera for sensing the

temperature distribution of a surface layer on the powder bed (page 8, lines 28-30), but does not directly disclose an energy balance equation. Using the temperature information gathered by the camera, a skilled artisan would have been able to instruct a control computer to construct an energy balance equation using the known energy equation:

52. $H=C_p * m * \Delta T$

53. Where m is the mass of the selected area, C_p is the specific heat capacity of the powder being fused, and ΔT is the change in temperature of the powder areas.

54. Andersson et al also disclose that the power output (and thus energy) from the radiation beam is adjustable (page 12, line 2), and that the control computer can adjust the pattern that the radiation is exposed to on the powder (page 7, lines 19-21)

55. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the control computer, the camera to detect the powder temperature, and adjustable radiation beam as taught Andersson et al, and using the known equation $H=C_p * m * \Delta T$, be able to calculate an energy balance equation, it has also been held that discovering an optimum value of a result effective variable involves routine skill in the art since doing so would enable the operator to ensure no manufacturing defects are introduced into the product, such as induced strain. *In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).*

Double Patenting

56. Claim 2 of this application conflict with claim 7 of Application No. 10/539591. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant

contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

57. Claim 2 of this application conflict with claim 8 of Application No. 10/539587. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

58. Claim 3 of this application conflict with claim 8 of Application No. 10/539591. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

59. Claim 3 of this application conflict with claim 9 of Application No. 10/539587. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be

required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

60. Claim 7 of this application conflict with claim 15 of Application No. 10/539591. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

61. Claim 7 of this application conflict with claim 18 of Application No. 10/539587. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

62. Claim 8 of this application conflict with claim 16 of Application No. 10/539591. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during

pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

63. Claim 8 of this application conflict with claim 19 of Application No. 10/539587. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

64. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

65. Claim 2 is rejected on the grounds of statutory "same invention" double patenting as being unpatentable over claim 7 of copending U.S. Application No. 10/539591 (Larsson) and claim 8 of copending U.S. Application 10/539587 (Larsson).

66. The subject matter claimed in the instant application and copending U.S. Application No. 10/539591 (Larsson) is as follows in Table 1 below

Table 1:	
Instant Application	U.S. Application 10/539591
2) The method as claimed in claim 1, characterized in that, in addition to said energy for fusing together the **selected** area, energy for heating the **selected** area is supplied if the result of the energy balance calculation is that sufficient energy for maintaining an intended working temperature of the **selected** area is not present, a defined working temperature of the **selected** area then being achieved	7) The method as claimed in claim 6, characterized in that, in addition to said energy for fusing together the part area, energy for heating the part area is supplied if the result of the energy balance calculation is that sufficient energy for maintaining an intended working temperature of the part area is not present, a defined working temperature of the part area then being achieved

67. Note that the term **selected** and part are not patentably distinct since the embodiments are the same.

68. The subject matter claimed in the instant application and copending U.S. Application No. 10/539587 (Larsson) is as follows in Table 2 below

Table 2:	
Instant Application	U.S. Application 10/539587
2) The method as claimed in claim 1, characterized in that, in addition to said energy for fusing together the **selected** area, energy for heating the **selected** area is supplied if the result of the energy balance calculation is that sufficient energy for maintaining an intended working	8) The method as claimed in claim 7, characterized in that, in addition to said energy for fusing together the part area, energy for heating the part area is supplied if the result of the energy balance calculation is that sufficient energy for maintaining an intended working

temperature of the **selected** area is not present, a defined working temperature of the **selected** area then being achieved	temperature of the part area is not present, a defined working temperature of the part area then being achieved.

69. Note that the term **selected** and part are not patentably distinct since the embodiments are the same.

70. Claim 3 is rejected on the grounds of statutory "same invention" double patenting as being unpatentable over claim 8 of copending U.S. Application No. 10/539591 (Larsson) and claim 9 of copending U.S. Application 10/539587 (Larsson).

71. The subject matter claimed in the instant application and copending U.S. Application No. 10/539591 (Larsson) is as follows in Table 3 below

Table 3:	
Instant Application	U.S. Application 10/539591
3) The method as claimed in claim 1 or 2, characterized in that the energy balance for each powder layer is calculated according to $E^{in}(i) = E^{out}(i) + E^{heat}(i)$, where $E^{in}(i)$ represents energy fed into the **selected** area, $E^{out}(i)$ represents energy losses through dissipation and radiation from the part area, and $E^{heat}(i)$ represents stored in the **selected** area.	8) The method as claimed in claim 6 or 7, characterized in that the energy balance for each powder layer is calculated according to *Ein(i) =EUt(i) + Exeat(i),* where *Ein(i)* represents energy fed into the part area, *EUt(i)* represents energy losses through dissipation and radiation from the part area, and *E"eat(i)* represents stored in the part area.

72. Note that the term **selected** and part are not patentably distinct since the embodiments are the same. Also note that the energy balance equation and terms have differing symbols but the same meaning, and are thus not patentably distinct

73. The subject matter claimed in the instant application and copending U.S. Application No. 10/539587 (Larsson) is as follows in Table 4 below

Table 4:	
Instant Application	U.S. Application 10/539587
3) The method as claimed in claim 1 or 2, characterized in that the energy balance for each powder layer is calculated according to $E^{in}(i) = E^{out}(i) + E^{heat}(i)$, where $E^{in}(i)$ represents energy fed into the **selected** area, $E^{out}(i)$ represents energy losses through dissipation and radiation from the part area, and $E^{heat}(i)$ represents stored in the **selected** area.	9) The method as claimed in claim 7 or 8, characterized in that the energy balance for each powder layer is calculated according to *Ein(i) = EUt(i) + Exeat(i),* where *Ein(i)* represents energy fed into the part area, *EUt(i)* represents energy losses through dissipation and radiation from the part area, and *Eheat(i)* represents stored in the part area.

74. Note that the term **selected** and part are not patentably distinct since the embodiments are the same. Also note that the energy balance equation and terms have differing symbols, but the same meaning, and are thus not patentably distinct

75. Claim 7 is rejected on the grounds of statutory "same invention" double patenting as being unpatentable over claim 15 of copending U.S. Application No. 10/539591 (Larsson) and claim 18 of copending U.S. Application 10/539587 (Larsson).

76. The subject matter claimed in the instant application and copending U.S. Application No. 10/539591 (Larsson) is as follows in Table 5 below

Table 5:	
Instant Application	U.S. Application 10/539591
7) The arrangement as claimed in claim 6, characterized in that the control computer is arranged so as to control said operating scheme for supply of, in addition to said energy for fusing together powder layers, energy for heating the powder layer if the result of the energy balance calculation is that the operating scheme is not providing sufficient energy for maintaining an intended working temperature of the part	15) The arrangement as claimed in claim 14, characterized in that the control computer is arranged so as to control said operating scheme for supply of, in addition to said energy for fusing together powder layers, energy for heating the powder layer if the result of the energy balance calculation is that the operating scheme is not providing sufficient energy for maintaining an intended working temperature of the part

area, a defined working temperature of the part area then being maintained.	area, a defined working temperature of the part area then being maintained.

77. The two claims are identical, and not patentably distinct.

78. The subject matter claimed in the instant application and copending U.S. Application No. 10/539587 (Larsson) is as follows in Table 6 below

Table 6:	
Instant Application	U.S. Application 10/539591
7) The arrangement as claimed in claim 6, characterized in that the control computer is arranged so as to control said operating scheme for supply of, in addition to said energy for fusing together powder layers, energy for heating the powder layer if the result of the energy balance calculation is that the operating scheme is not providing sufficient energy for maintaining an intended working temperature of the part area, a defined working temperature of the part area then being maintained.	18) The arrangement as claimed in claim 17, characterized in that the control computer is arranged so as to control said operating scheme for supply of, in addition to said energy for fusing together powder layers, energy for heating the powder layer if the result of the energy balance calculation is that the operating scheme is not providing sufficient energy for maintaining an intended working temperature of the part area, a defined working temperature of the part area then being maintained.

79. The two claims are identical, and not patentably distinct.

80. Claim 8 is rejected on the grounds of statutory “same invention” double patenting as being unpatentable over claim 16 of copending U.S. Application No. 10/539591 (Larsson) and claim 19 of copending U.S. Application 10/539587 (Larsson).

81. The subject matter claimed in the instant application and copending U.S. Application No. 10/539591 (Larsson) is as follows in Table 7 below

Table 7:	
Instant Application	U.S. Application 10/539591
8) The arrangement as claimed in claim 6 or 7, characterized in that the control	16) The arrangement as claimed in claim 14 or 15, characterized in that the control

computer is arranged so as to calculate the energy balance for each powder layer according to Ein(i) = Eout(i) + Eheat(i), where Ein(i) represents energy fed into the part area, Eout(i) represents energy losses through dissipation and radiation from the part area, and Eheat(i) represents energy stored in the part area.	computer is arranged so as to calculate the energy balance for each powder layer according to E'"(i) = Eout(i) + Eheat(i) where Ein(i) represents energy fed into the part area, Eut(i) represents energy losses through dissipation and radiation from the part area, and Eheat(i) represents energy stored in the part area.

82. Note that the energy balance equation and terms have differing symbols, but the same meaning, and are thus not patentably distinct

83. The subject matter claimed in the instant application and copending U.S. Application No. 10/539587 (Larsson) is as follows in Table 8 below

Table 8:	
Instant Application	U.S. Application 10/539591
8) The arrangement as claimed in claim 6 or 7, characterized in that the control computer is arranged so as to calculate the energy balance for each powder layer according to Ein(i) = Eout(i) + Eheat(i), where Ein(i) represents energy fed into the part area, Eout(i) represents energy losses through dissipation and radiation from the part area, and Eheat(i) represents energy stored in the part area.	19) The arrangement as claimed in claim 17 or 18, characterized in that the control computer is arranged so as to calculate the energy balance for each powder layer according to Ein(i) = Eout(i) + Eheat(i), where Ein(i) represents energy fed into the part area, Eout (i) represents energy losses through dissipation and radiation from the part area, and Eheat(i) represents energy stored in the part area.

84. The two claims are identical, and not patentably distinct. Note that the independent claims and those claims that intervene have been considered in full.

Conclusion

85. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

86. U.S. Patent 5,387,380: Same conceptual idea

87. U.S. Patent 5,427,733 (Already of Record): Energy control

88. U.S. Patent 5,786,562: Same conceptual idea

89. U.S. Patent 5,837,960: Same conceptual idea

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMOTHY KENNEDY whose telephone number is (571)270-7068. The examiner can normally be reached on Monday to Thursday 7:30am to 5:00pm, and every other Friday 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Ortiz can be reached on (571) 272-1206. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Tjk

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